

Aztlan Academy Presents *Physics Bus Exhibit Builders*

Mentoring Teams

There are presently six mentors who are helping the *Physics Exhibit Builders* at the Aztlan Academy.

John and Irazema – *Sound Modulated Laser Beam*



John, a Math student at the University of Arizona, mentored Irazema as she built a sound modulated laser beam exhibit. Her exhibit transmits an audio signal (music from a CD

player) through a laser beam to a solar panel, which is mounted on a boom box. Out of the boom box you can hear whatever is being played! Prof. Bayly showed it off to a curious graduate student.



Anna and Ana – *Infinite Light Tunnel*



Anna is a Physics major at Pima Community College. She has been working with Ana in building an optical illusion exhibit of an infinite tunnel. Beyond having an understanding of optics, this project has required them to learn many practical skills like building

a square, mitering angles, and cutting glass. Here a young boy and his father peer into infinity wondering how it works.



Rob, Marikza and Paul – *Lenz Law Exhibits*



Rob has his masters degree in Physics and he is an adjunct faculty at Pima Community College. He is working with Marikza and Manny on a series of exhibits which all demonstrate Lenz Law: *the induced current produced in the conductor always flows*

in a direction such that it opposes the change that is producing it. Their exhibits include: the falling magnet, the ring launcher, and the spinning can.



Dominic and Karen – *Human Battery*

Dominic is getting his degree in Industrial Engineering at Pima Community College. He is helping Karen construct a ‘human battery’ exhibit; this demonstrates that two dissimilar metals with an electrolyte between them, *in this case a person*, will form a voltaic cell. This boy and his sister



made some real electricity!

Matt and David – *Metal Detector*



David has soldered all the components to the circuit board and he’s ready for the final step--installing the detector coil.

Matt is an electrical engineering major at the University of Arizona. He helps David create the circuit board for a metal detector. Printing the circuit and etching away the copper with special acid has been one of the many challenges of this exhibit. At this point,



Laurel and Mayra – *Sound Distortion Slinky*



Laurel is an Optical Sciences major at the University of Arizona. She has just begun coming in to help Mayra build a *physics of electronic sound* exhibit. Although they are only in the planning stages, they are already a determined team discussing ‘cool’ ways to construct it.

Students Without Mentors

Jackie – The Electromagnet



With no mentor, and little help from her instructor, Jackie built a huge electromagnet exhibit with an old electromagnet that came from a junk yard. She measured it, cut the wood, pre-drilled for her screws, and grinded through metal in the process. Kids were amazed at how much they could lift, and they loved the loud clanging sound.



Paul – The Bernoulli Ball



Paul is another student who is still waiting for a mentor. Being very self-driven and trustworthy, he worked on his exhibit by himself after finishing his class work. Making a square box turned out to

be more difficult than finding the right fan, making the flow laminar, and getting a ball to hover nicely above the exhibit.



Christian and Alejandro – Electromagnetic Accelerator



Christian and Alejandro had already built an electromagnet in a previous science course, but they still wanted to learn electromagnetism in a hands-on way. After they did “way too much math” to figure

out the magnet spacing, they finished ‘Sparky’ which has been on display at the U of A twice.

